

# Commonwealth of Virginia Cloud Computing Update

Tom Twyman  
Sr. vSpecialist, EMC  
VMware Technology Alliance

# Agenda

- Is it Real?
- What is Cloud Computing?
- Why is Cloud Computing Relevant?
- Technical Discussion

# Private Clouds Are Taking Off

- Industry CIO Priorities Have Shifted From 2009-2010
  - Virtualization From Priority #3 To #1
  - Cloud From Priority #14 To #2 (Gartner CIO Agenda Q4, 2009)
- 70% Will Spend More On Private Cloud Through 2012
  - Only 8% Spend More On Public Cloud
  - (Gartner Note: G00200440, 2009 DC Conf Polls)

# Definition of Cloud Computing

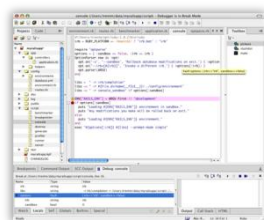
On demand, self-managed  
virtualized infrastructure,  
consumed as a service.

# Service Models



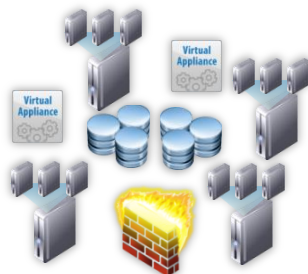
## Application/Information

Sometimes referred to as Software-as-a-Service, a wide ranging services delivered via varied business models normally available as public offering.



## Development

Sometimes referred to as Platform-as-a-Service, application development platforms enable application authoring and runtime environment.



## Infrastructure

Sometimes referred to as elastic compute clouds or Infrastructure-as-a-Service, virtual hardware made available for varied uses.



## 2 Main Deployment Environments

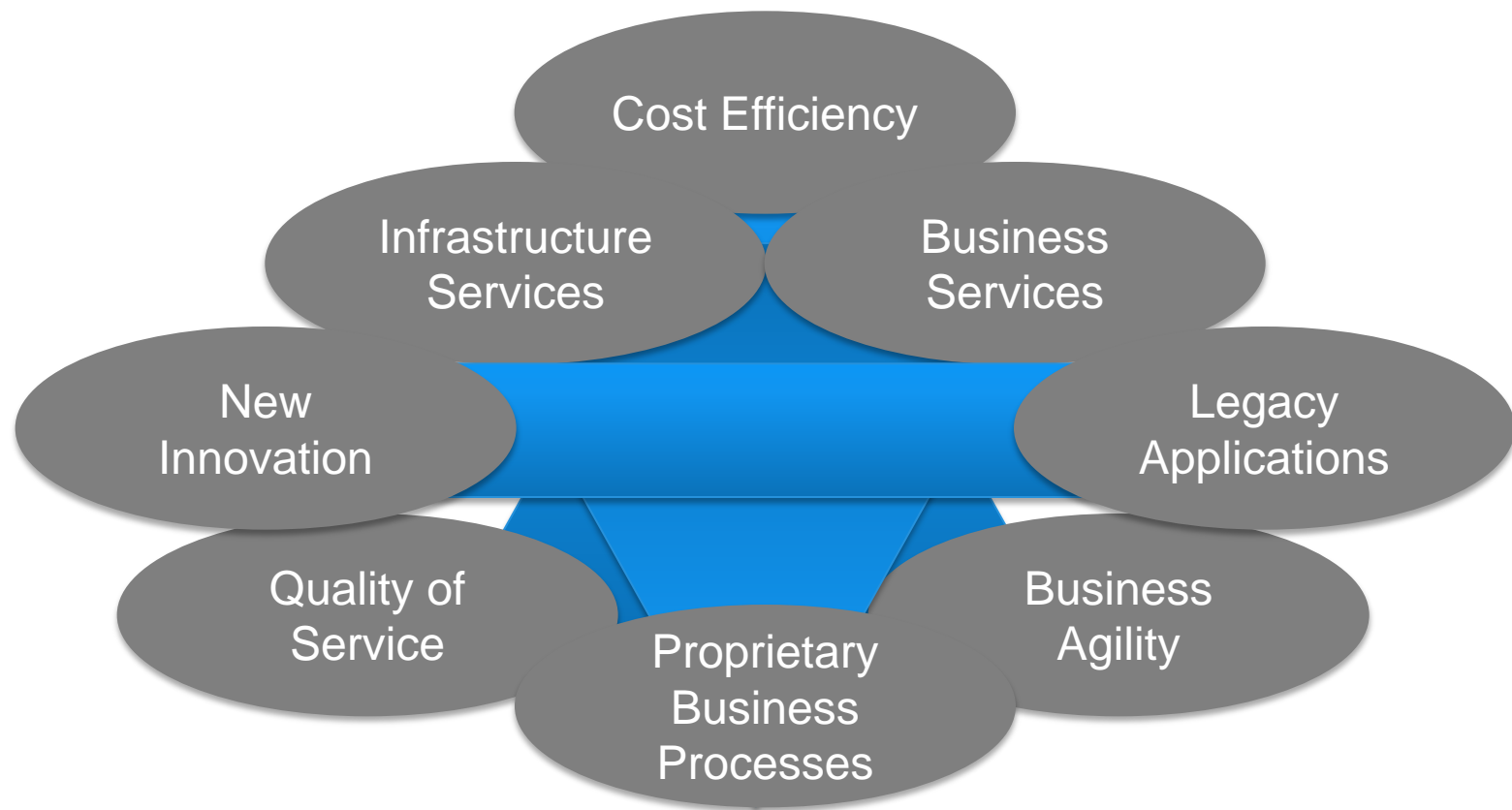
### Private

Behind a firewall for use by limited, pre-determined audience

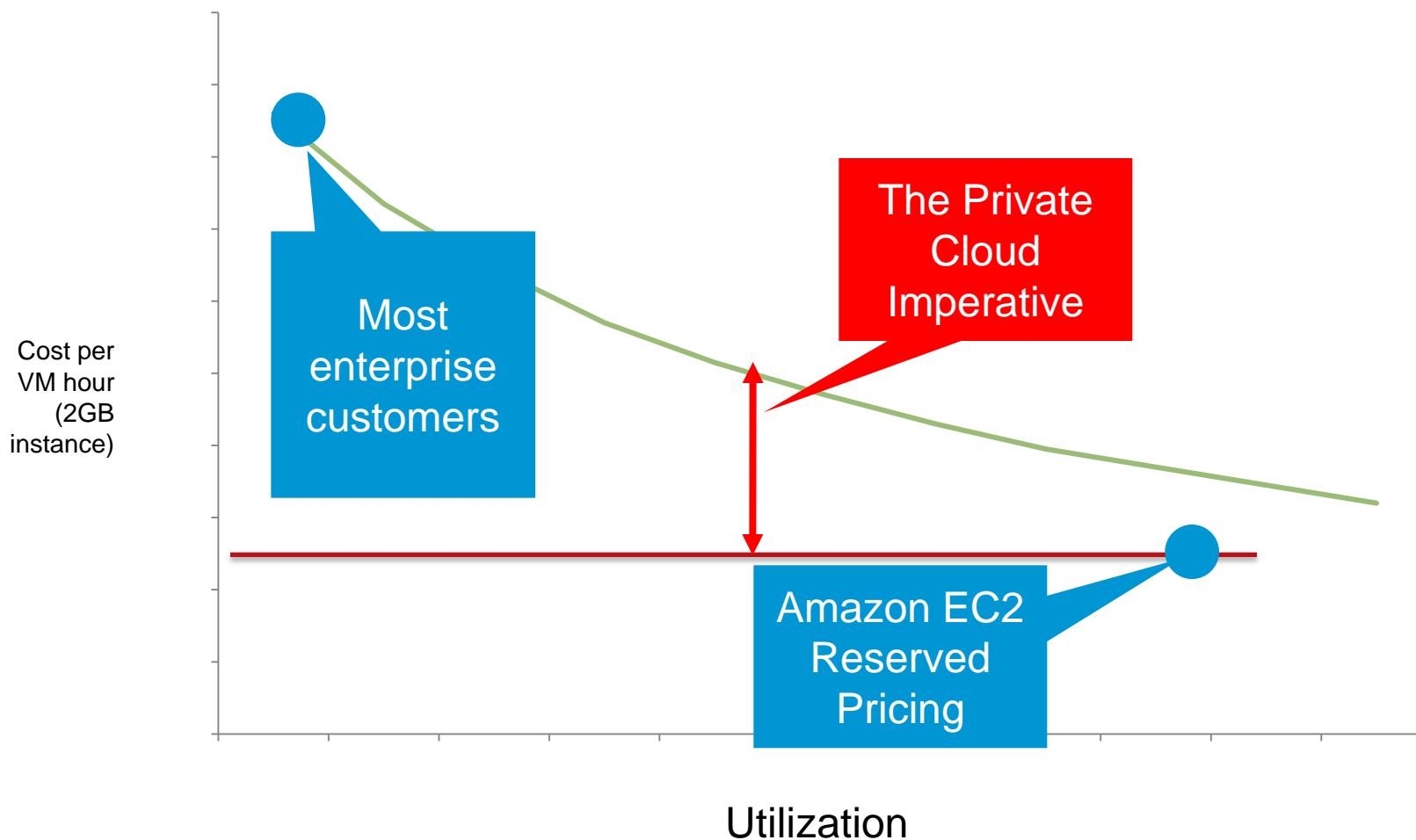
### Public

Accessible over the Internet for general consumption

# What is Driving us to the Cloud?



## ...but Public Clouds are Setting New Cost Benchmarks

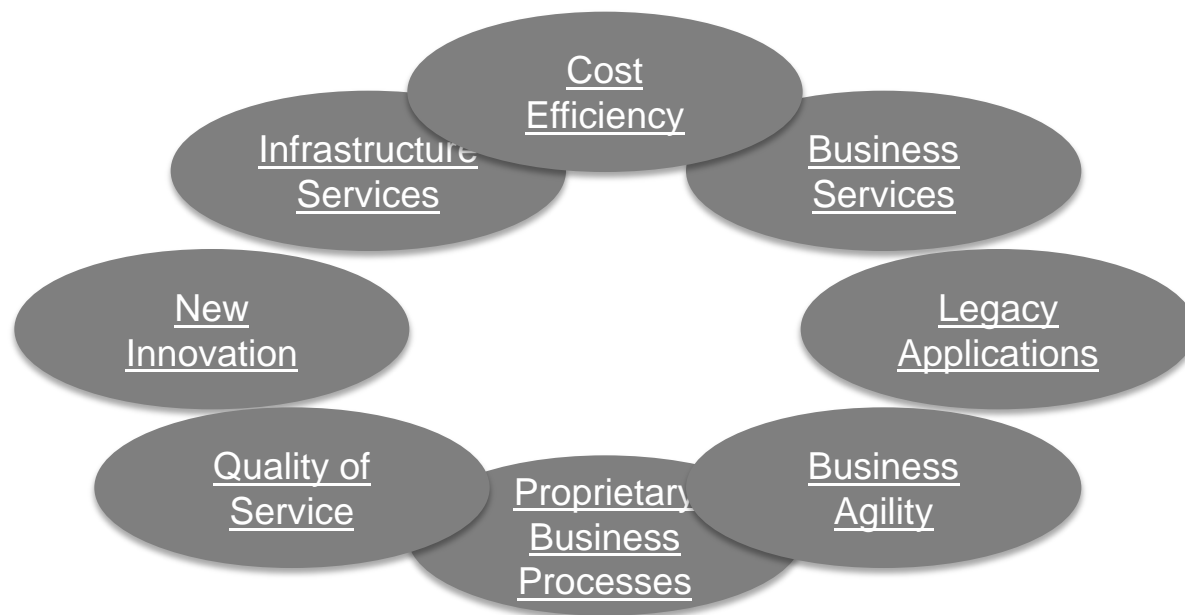


Sources: Amazon, EMC CIG, VMware analysis

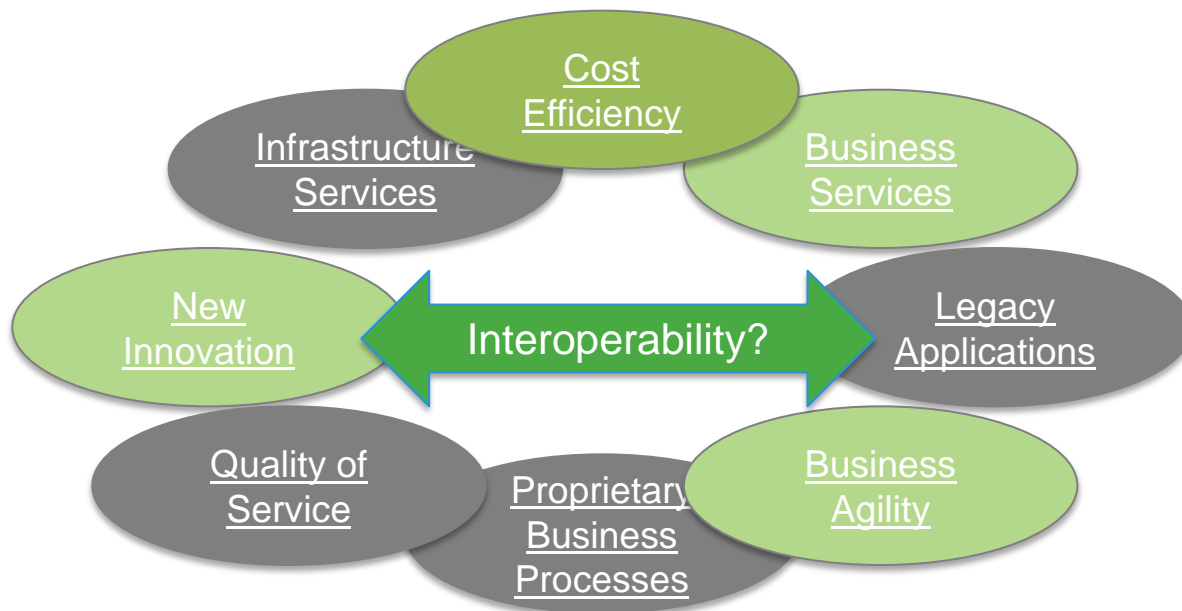
Confidential

**EMC<sup>2</sup>**  
where information lives®

# How Do We Get There?



# How Do We Get There?



# Cloud Computing Is The Next Wave of IT

- Traditional IT

- Trusted, Reliable, Secure & Controlled Environment
- Silos : Mainframe, Proprietary Unix, Heterogeneous x86
- Under-utilized Server, Storage & Network Resources
- Workforce That Can't Keep Up With Infrastructure Growth

- Cloud

- Dynamic, On-Demand, Self-Service, Flexible & Scalable
- Built Differently: A Big Pool of Virtualized, Shared Resources
- Operated Differently: Organized for IT Service Delivery, Not Silos
- Consumed Differently: Optimized For the Consumer of Service

# The Benefits Of The Private Cloud

- Lower IT Costs
  - Virtualized Pools Of Resource Drives Up Utilization
  - Less Complexity, More Automation
- Improved Quality Of Service
  - Standardize Infrastructure And Process
  - Rapid Provisioning, Seconds Instead Of Weeks
  - Easier recovery, higher availability
- Greater Business Agility
  - Service-Based, Dynamic
  - Chargeback Aligns Resources And Business Value

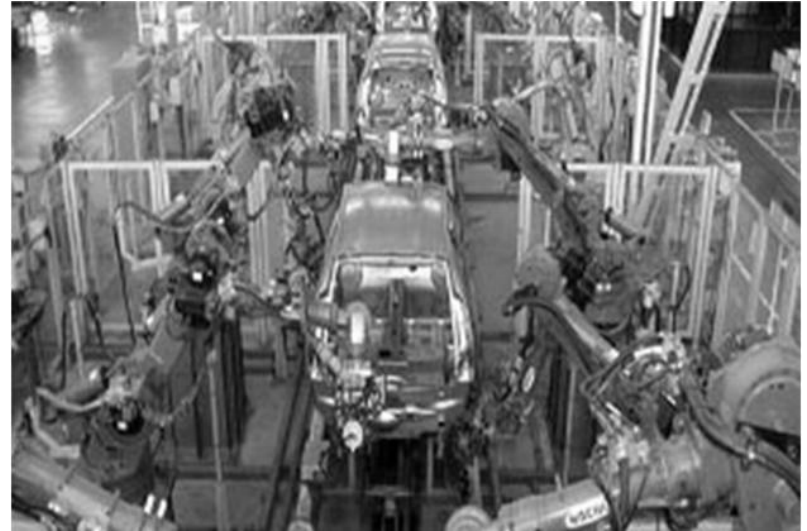
# IT is Built and Run Differently

## Before



- Multiple independent operations
- Lots of buffer inventory
- Quality and output are inconsistent
- Lots of manual intervention
- Inefficient and not cost competitive

## After



- Highly integrated—all processes are linked into one contiguous operation
- Minimal buffer inventory needed
- Consistent, self-correcting process
- Minimal manual intervention needed

# IT-As-A-Service

## *CEOs and CIOs want to:*

Enable policy-driven provisioning,  
management, and delivery of services =  
business agility

## *Supported by infrastructure that:*

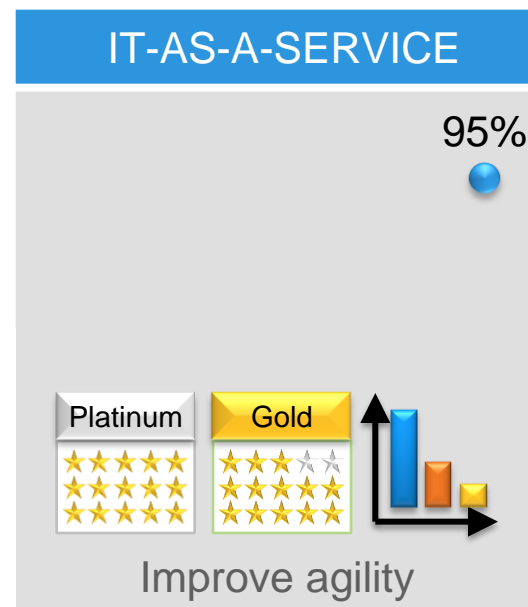
Stops focusing on plumbing

Delivers Policy automation, and  
chargeback

Offers storage for next-gen applications

Builds security into the Cloud

# Greater business agility

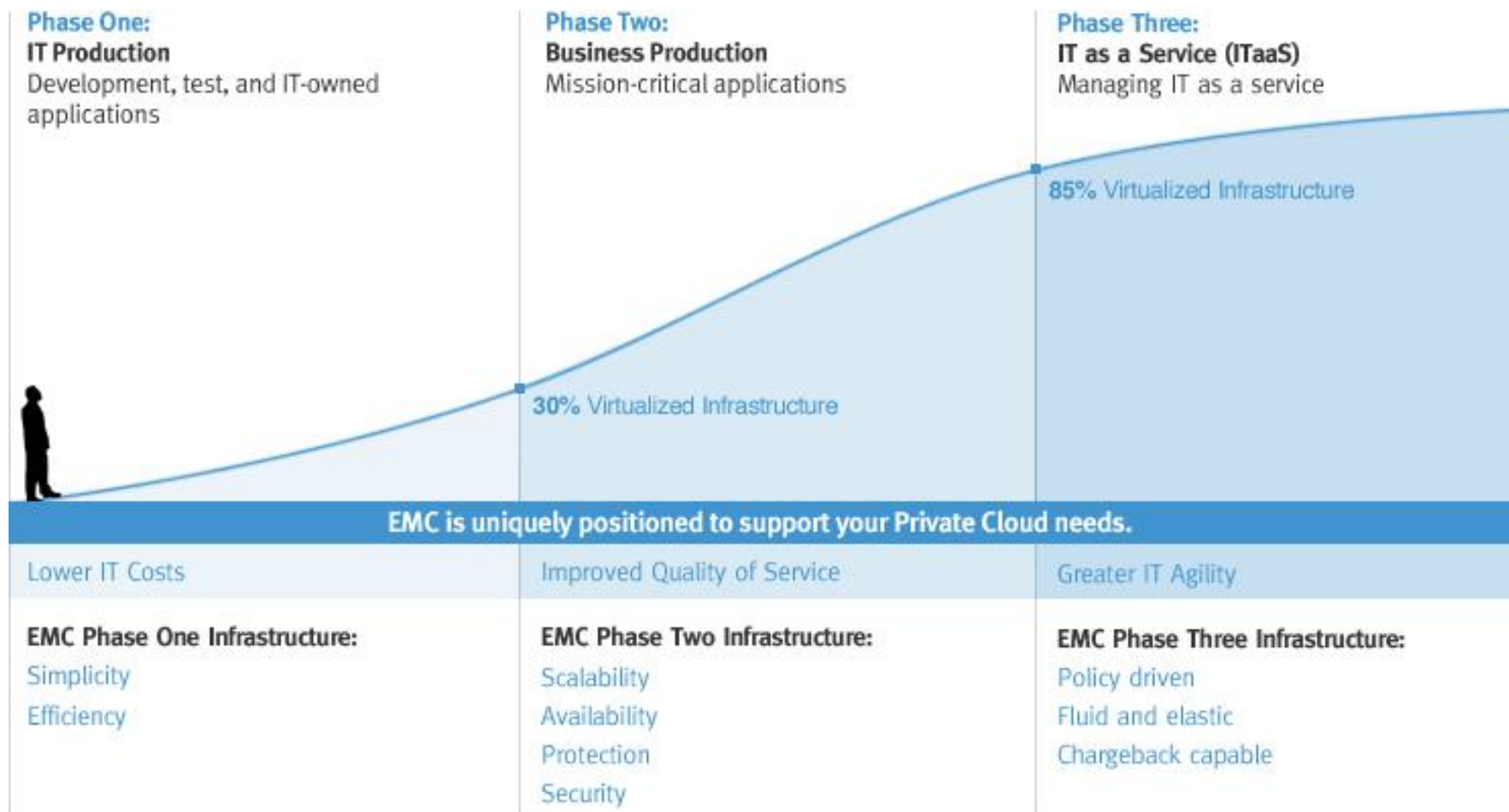


# Server Virtualization Changed The Game and Enables Cloud Computing

- Servers And Workloads Are Encapsulated in Containers
  - Create New Environments As Easy As Copying A File
  - Move Workloads As Easy As Moving a File
  - Change Workload Capacity Instantly By Changing HW Allocation
  - Hardware Independent, Allowing Flexibility On Underlying HW
- Potential Of The New Model Is Transformative
  - Dramatic Improvement In Service Levels
  - Dramatic Cost Savings
  - IT Becomes An Enabler Of New Business Strategies
- Cloud Service Providers Added A Couple Things On Top
  - Self-service Interface To Request Servers And Storage
  - Cost Transparency and Pay-As-You-Use Model

# The Journey to The Private Cloud

If you are virtualizing, you are on the journey.



# “Musts” For Journey To The Private Cloud

- Technology Change
  - Move To 100% x86 Standardized Servers
  - Virtualization (Servers, Storage, Network)
  - De-Duplication (Primary and Secondary Data)
  - Automated Policy Enforcement
  - Governance, Risk & Compliance Platform
- Process Change
  - Services In IT Catalog Drive Processes – Capacity Planning, Procurement, Etc...
  - Self-Service Portals To Request Services / Service Levels
  - Chargeback For Usage

**EMC<sup>2</sup>**  
**where information lives<sup>®</sup>**  
*virtualized*